CLAIMS

1 - A heat exchanger in which:

- modules (2, 102, 202, 302, 402, 502, 602, 702) define a first path (6) for a first fluid, each comprising two metal sheets (3) forming between them a network of channels (6) which are located in parallel with each other from the fluidic point of view, each channel interposed between two neighbouring channels of the network being, over the whole of its developed length, adjacent to these two neighbouring channels from which it is isolated by two respective weld lines (3) connecting the two metal sheets and
- a second path (28) for a second fluid is defined between the modules,

characterised by an overall variation in the passage cross-section over the length of at least one of the paths with continuity of the profiles of the channels.

2 - A heat exchanger according to claim 1, characterised in that the pitch between the neighbouring weld lines (604) varies progressively over at least part of the length of the channels of one module (602).

3 - A heat exchanger according to claim 1 or 2, characterised in that the inflation of the metal sheets of a module (602) varies progressively over at least part of the length of the channels.

4 - A heat exchanger according to one of claims 1 to 3, characterised in that the pitch (P_g, P_h, P_j, P_k, P_m, P_n,) between neighbouring weld lines (4) varies from one channel to the other of a module (402, 502).

5 - A heat exchanger according to one of claims 1 to 4, characterised in that the inflation (G_a, G_b, G_c, G_d; G_e, G_j, G_k, G_m, G_n,) of the metal sheets of a module (102, 202, 302, 502) varies from one channel to another (6_a, 6_b, 6_c, 6_d; 6_e; 6_j, 6_k, 6_m, 6_n).

6 - A Heat exchanger according to one of claims 1 to 5, characterised in that the arrangement of the modules in relation

to each other produces an overall variation in the passage cross-section over the length of the second path (28).

7 - A heat exchanger according to one of claims 1 to 6, characterised in that the overall variation in the cross-section of one of the paths is in the same direction as a variation in the flow rate of gas in this path intended for a phase change process.

8 - A heat exchanger according to one of claims 1 to 7, characterised in that the modules are in parallel planes (P).

9 - A heat exchanger according to one of claims 1 to 7, characterised in that the modules are in convergent planes (P_1).

10 - A heat exchanger according to one of claims 1 to 9, characterised in that the modules have longitudinal edges (37) forming an angle with each other, each being almost parallel to a respective outside weld line (604).

11 - A heat exchange module (2, 102, 202, 302, 402, 502, 602), each one comprising two metal sheets (3) which between them form a network of channels located in parallel to each other from a fluidic point of view, each channel interposed between two neighbouring channels of the network being adjacent over its whole developed length to these two neighbouring channels from which it is isolated by two respective weld lines joining the two metal sheets, characterised by an overall variation in the passage cross-section defined by the channels with continuity of profile of the channels.

12 - A heat exchange module according to claim 11, characterised in that the pitch between neighbouring weld lines (604) varies progressively over at least part of the length of the channels.

13 - A heat exchange module according to claim 11 or 12, characterised in that the inflation of the metal sheets varies progressively over at least part of the length of the channels.

14 - A heat exchange module according to one of claims 11 to 13, characterised in that the pitch (P_g, P_h, P_j, P_k, P_m, P_n) between the neighbouring weld lines (4) varies from one channel the other.

15 - A heat exchange module according to one of claims 11 to 14, characterised in that the inflation (G_a, G_b, G_c, G_d; G_e; G_j, G_k, G_m, G_n) of the metal sheets varies from one channel to the other.

16 - A heat exchange module according to one of claims 11 to 15, characterised in that it comprises longitudinal edges (37) each forming an angle with the other, each being almost parallel to a respective outside line of weld.